Highly Intensive Teaching in Tertiary Education: A Review of Recent Scholarship

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Highly intensive teaching in tertiary education: A review of recent scholarship

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Abstract

This chapter provides a critical review of recently published empirical papers on highly intensive teaching in higher education. Highly intensive teaching refers to subjects taught face-to-face in four weeks or less. Building upon and extending an influential review of intensive mode delivery (IMD) in higher education by Davies in 2006, this literature review confirms the observation made by several scholars investigating IMD that despite the increasing popularity of this form of delivery, rigorous and methodologically robust research into the benefits and challenges of this form of pedagogy is still in its infancy. By applying cognitive learning theory, this chapter discusses the circumstances under which intensive mode teaching is likely to be most effective and outlines potential avenues for further research.

Introduction

Tertiary providers in Australia and other nations have increasingly begun to offer subjects at both the undergraduate and postgraduate levels through a compressed or blocked form of teaching and learning known as intensive mode delivery (IMD). The rising popularity of IMD is evidenced by the recent production of good practice guides (e.g. Male, Baillie, Hancock, Leggoe, & MacNish, 2016; Wlodkowski & Ginsberg, 2010). Despite this rising popularity, however, researchers state that providers need greater knowledge about how to effectively deliver education in compressed formats. As Dixon and O'Gorman (2019) reported, "research into …[IMD] is relatively limited in comparison to other innovative approaches to curriculum design and implementation" (p. 2). More research on IMD is important as tertiary providers need to help students achieve any stated learning outcomes as well as feel satisfied with their learning experience. Providers need to know which formats of IMD, if any, are most suitable for different types of students and subjects

as well as how best to teach within this mode. Providers also need to understand the strengths and limitations of IMD, what changes need to be made to traditionally taught subjects to make IMD successful, and what support teachers need to make the transition to IMD. Overall, a provider's decision to put IMD in place should be a thoughtful one.

This paper consists of a literature review of empirical studies conducted on face-to-face IMD formats available since 2006. The paper builds upon the work of Davies (2006) who published a review of face-to-face IMD formats in the tertiary education sector that authors writing on this topic frequently cite (e.g., Dixon & O'Gorman, 2019; Hesterman, 2015; Crispin, Hancock, Male, Baillie, Macnish, Leggoe, Ranmuthugala, & Alam, 2016). Davies' (2006) review defined IMD, outlined where different types of IMD are practiced, reviewed literature on IMD including empirical studies, discussed issues in interpreting data from the empirical studies, and outlined IMD learning issues. He argued that although IMD can offer some advantages, he offered some warnings about implementing it. Davies concluded that more research is needed on the learning outcomes that postgraduate students achieve through IMD, how different IMD formats impact upon adult learning, the Australian situation for IMD, IMD formats specifically in Economics and Commerce, and potential pitfalls of IMD (pp. 15-16). Our paper furthers Davies' work by looking again at definitions of IMD, discussing why providers choose this mode of teaching, and evaluating IMD through the lens of cognitive learning theory. The paper also furthers Davies' work by reviewing empirical studies of IMD published since 2006, considering methodological problems of those studies, and offering a list of areas for further research. The paper's research method discusses how we located and reviewed the empirical studies. As we confined our research to face-to-face delivery, it is important to note that other issues would need to be explored if we relaxed the definition of IMD to include technologically enabled delivery. The

paper should be most useful for traditional academics and administrators seeking to augment their traditional delivery with IMD.

We conducted this research in response to a change in the delivery of the Master of Communication in our faculty from a traditional 12-week semester to an intensive mode structure consisting of two three-day intensive blocks (six hours per day) usually separated by five weeks (e.g., Thursday, Friday, and Saturday in weeks 3 and 8) within a 12-week semester. Students are required to do work before and after the block meetings. As reported by Burton and Nesbit (2008), the Macquarie Graduate School of Management in Australia runs IMD classes in a similar format to that used at our institution. These authors reported that at their institution, a typical block teaching format consists of three consecutive eight-hour day meetings on a Friday, Saturday, and Sunday followed by a weekend off, and then two more eight-hour meetings on a Saturday and Sunday. However, according to Hesterman (2015), who conducted a literature review of IMD in engineering, computer science and math, these two-weekend formats are unusual since "Only a small number of intensive courses currently offered at tertiary level concentrate all contact hours into a single week or employ multi-day workshops" (p. i). Students taking subjects in our program at Bond University may be enrolled full-time in the Master of Communication, might be taking a Communication subject as an elective within another degree (e.g., Master of Business, Master of Construction), or might be studying at the University as part of a one-semester study abroad program. In any semester, most of the students are from overseas with only a few being local or from within Australia. Given the diversity of the students in cultural background, English-language proficiency, education, and work and family commitments, we had questions about how best to design our subjects and teach within this mode.

Definitions of intensive mode teaching

Across the literature, intensive mode teaching typically refers to any format that has fewer yet longer meetings than the format of a traditional 12 to 16-week semester. Subjects taught in intensive mode may also have fewer contact hours with an instructor than in a traditional class. Some terms used to describe IMD formats are *summer school*, *accelerated learning*, *block-mode learning*, or *compressed* or *intensive mode delivery (IMD)*.

Summer school typically refers to subjects taught in the USA during the summer months of May through August that cover the same content in a shorter amount of time (2-10 weeks) than a subject delivered across a conventional semester. In summer school, 15 hours of class time are required for one hour of academic credit (Kretovics, Crowe, & Hyun, 2005). Students may enroll in summer school to retake subjects that they have failed, take university preparatory subjects, take subjects that did not fit into their regular semester schedule, take additional subjects beyond the requirements of their degree, take subjects to help them graduate early, or reduce the number of subjects they need to take in a regular semester (Kretovics, et al., 2005). As summer school is an established teaching tradition in the USA and not delivered in blocks or within a single week, this term will not be discussed further in this paper.

Regarding *accelerated learning,* Wlodkowski and Ginsberg (2010) state that it requires less time spent with a teacher than in a conventional semester. Whereas a three-credit course within a conventional semester would require 40-45 hours of contact, a student can complete an accelerated course "with as few as twenty contact hours in a term of five weeks" (p. 2). Accelerated learning may also refer to an approach taken to teaching and learning and not just delivering a subject over a non-traditional schedule. According to the Center for Accelerated

Learning (2020), accelerated learning is a special form of active learning that uses purposeful and authentic activities to help students learn more than they would in traditionally designed classes. Accelerated learning will not be discussed again in this paper.

Although *block-mode teaching* can refer to subjects that are run on a daily basis for more than sixty minutes as in some high schools (Davies, 2006), some researchers now use this term interchangeably with the terms *compressed* or *intensive mode delivery* (e.g. Dixon & O'Gorman, 2019). Burton and Nesbit (2002) noted that the literature describes great variety in what researchers refer to as *compressed or intensive mode delivery*. Our own literature review shows that such delivery can refer to, for example, five days of teaching (Ramsay, 2011), two weeks of teaching (Mishra & Nargundkar, 2015), six full-day sessions across three weeks resulting in a total of 36 hours of in-class tuition (Ladyshewsky & Taplin, 2013), and two four-hour meetings per week over five weeks (Ho & Polonsky). This literature review, however, considers only highly intensive mode delivery, which we describe as having in-class, face-to-face teaching delivery within four weeks or less.

Why are tertiary providers offering intensive delivery of subjects?

A broad review of the relevant literature in the field has revealed seven key reasons why tertiary providers offer IMD, which are to help governments reach their goals for educating more people, to meet the needs of working adults, to help non-traditional and entry-level students make the transition into university study, to provide extended time to engage in learning activities in a subject, to allow institutions to more easily staff off-shore teaching, to hire working professionals to teach subjects on weekends, and to help providers achieve cost efficiencies.

To help governments reach their goals for educating more people

The Australian Government Department of Education and Training (2018) states that to achieve "world-class tertiary education and research", it is aiming for more students to participate in higher education, including those who are typically under-represented. The government explicitly defines under-represented groups as students who have a disability, indigenous students, EFL students, students from low socioeconomic status backgrounds, and students from regional and remote areas. As some IMD formats (e.g., weekend delivery of a subject) offer the potential for more types of people (e.g., those who need to work Monday through Friday) to participate in tertiary education, this mode of teaching may help the Australian and other governments to achieve their goals for educating more people.

One term used to describe this change in the student population to include under-represented or non-traditional learners is the "massification" of higher education (e.g., Giannakis & Bullivant, 2016). Massification has brought new challenges to the sector, such as educators' need to engage passive learners and to help non-traditional learners develop the skills needed for success in higher education such as deep learning and critical thinking (e.g., Biggs & Tang, 2007). Educators are being called upon to offer more creative and flexible teaching formats such as IMD to help students overcome passivity and develop key learning skills (Davies, 2006). Thus, many researchers and institutions view IMD as not just a scheduling change to allow more people to attend tertiary education but as an important tool for increasing student engagement and learning.

To help non-traditional and entry-level students make the transition into university study

Following a study of lecturers' perceptions of IMD in a UK undergraduate Tourism Management degree, Dixon and O'Gorman (2018) recommended that block delivery be used to help students, especially those from non-traditional backgrounds, make the transition to university study. At the start of a degree, block form teaching allows students to concentrate on just one subject at a time, which lecturers in the study perceived to be especially beneficial for non-traditional learners. A block form subject at the start of a degree also allows lecturers to check students' performance earlier and gives students an earlier feeling of success. Dixon and O'Gorman (2018) did not recommend IMD for an entire degree because in the institute that they studied, the IMD structure chosen actually hurt student learning. The researchers concluded that IMD failed "to improve levels of attainment, attendance and engagement" (p. 10). Even small absences from class hurt student learning, and when the final assessment was due weeks after the class meetings, students moved on to other things and did not give the assessment the required attention.

To meet the needs of adult working students

Another argument for implementing IMD is that it is a good choice for adult learners who are not available to come to class during traditional teaching hours and prefer to travel to campus less frequently (Wlodkowski & Ginsberg, 2010). These students are time poor and may have social obligations off campus that are more important to them than events on campus. Therefore, IMD appears to be more convenient than traditionally scheduled subjects for these students. By studying in an IMD format, adult working students have the opportunity to complete one or two subjects at a time and then move on to the next subject(s). Burton and Nesbit's (2002) survey of student attitudes supports this argument that IMD meets the needs of working adults. Students at

the Macquarie Graduate School of Management reported that convenience was this format's main advantage for them. Davies (2006) expressed that universities have offered more intensive mode classes primarily to meet students' demand and not for any reasons of quality pedagogy.

To provide extended time for different types of learning activities

Another argument made for using IMD for some subjects is to give students more time to engage in longer and different types of learning activities (e.g., writing a computer application). Thus, using IMD, some subjects would run more as workshops and lecturing would be limited (Cawelti, 1994).

To allow providers to cost-effectively hire staff for offshore teaching

Another reason that providers select IMD is to allow lecturers to fly offshore to deliver a course in a short number of days (e.g., five days) (Clark & Clark, 2000). This choice is cost-effective for providers and convenient for lecturers and students.

To give providers the opportunity to hire working professionals to teach subjects

As Ramsay (2011) notes, another reason that providers give for using IMD is that they would like to hire working professionals (e.g., lawyers) to teach some classes, and these professionals are only available on weekends. Therefore, IMD allows providers to reach into a larger pool of candidates to teach subjects in professional fields.

To help providers achieve cost efficiencies

As Wlodkowski and Ginsberg (2010) note, providers find accelerated or intensive mode delivery to be cost-effective. At least in the US, teachers of accelerated or intensive mode subjects tend to

be adjunct or part-time faculty who receive much lower pay than full-time faculty. Also, since adult learners commute to class, providers do not need to build and maintain expensive residential halls for them. As the aim of many providers is to encourage non-traditional students to study, there is also great potential for accelerated or intensive mode subjects to bring many more people to class.

Cognitive Learning Theory and IMD

One theoretical framework that is relevant to considering the appropriate use and the effectiveness of IMD is cognitive learning theory. This theory posits that learners construct their own knowledge through life experiences and that education should be designed to help learners develop along the continuum from novice to expert in a field. Following this theory, those who are novices will require different teaching and learning designs than those who have developed a greater level of expertise.

As presented in Table 1, Stevenson (1994) said that expertise can be explained according to five areas of thinking. These are knowledge organization, knowledge structures, problem representation, attention, and metacognition.

Table 1. Attributes of expertise (Stevenson, 1994, p. 17)

Functional area	Novices	Experts
Knowledge organization	Conceptually isolated facts	Structured, systematic, linked, coherent chunks that are accessible at different levels of abstraction or understanding
Knowledge structures	Declarative, isolated from applicability, general domain-independent problem-solving procedures that make knowledge difficult to apply	Compiled procedures, bound to conditions of applicability or goals allowing large number of procedures to be initiated according to situation
Problem representation	Focus on surface features. Superficial view of problems	Focus on underlying principles. Problems seen in terms of the whole model or system and features which are inconspicuous in a superficial view
Attention	High demands made on short-term memory because of all the isolated facts which need to be considered	Much knowledge is chunked together or compiled thus reducing the requirement for short-term memory for the problem solving and general operation so that much of what an expert does has become automatic
Metacognitive skills	Little evidence of any metacognitive skills	Used in approach to problems, monitoring own performance, perceiving the degree of difficulty, apportioning time, predicting outcomes and controlling cognition

Knowledge organization refers to the amount of knowledge that a person has in a field and how that knowledge is linked and assembled. Whereas a novice in a field will have only pieces of knowledge in memory, an expert's knowledge will be structured as coherent chunks. *Knowledge structures* refer to how well a learner can apply knowledge to solving problems or reaching goals. While experts know which knowledge structures to apply to different situations, novices have only isolated facts from which to work. The knowledge of novices is in declarative form,

which is difficult for them to apply to problem solving. Next, *problem representation* refers to how a learner perceives a problem. Whereas a novice will perceive only surface features of a problem, an expert will perceive the problem according to its underlying principles or a model or system that is not visible from a surface view. Next, *attention* refers to demands on a learner's short term or active memory. For novices, attentional demands are high because such learners are still trying to remember isolated facts. These learners have not yet organized the new knowledge into chunks in long term memory that they can apply to problems. For experts, attentional demands are less because knowledge is already chunked and stored in long term memory. An expert can more easily retrieve knowledge to apply to a problem than can a novice. Finally, *metacognitive skills* refer to a learner's ability to plan an appropriate approach to a problem, judge how well they are progressing with it, and adjust if necessary. A novice may have no metacognitive skills in a field at all.

Cognitive learning theory is useful for considering what types of learners and subjects are more suited to IMD and how teaching and learning should be designed to make IMD subjects more effective. Considering the learners, it seems apparent from cognitive learning theory that the students in an IMD subject should have quite similar levels of expertise in a field for this mode of teaching to be effective. While this issue is probably important for all classes, it is even more important for the IMD class. In an IMD class, if students do not have about the same level of expertise, then they should be given preparatory materials to develop their knowledge so that they can engage better in class meetings. However, if students in an IMD class have widely differing levels of expertise, the preparatory materials may not offer enough training to help the less experienced students reach the level of those having greater expertise before attending class. Also, the less experienced students may not have the metacognitive skills in a field to realize that

an IMD subject is not appropriate for them. Therefore, tertiary providers should take care in considering who should be enrolled in IMD classes so that less experienced students are not disappointed, and teachers frustrated.

Also in regard to the students, cognitive learning theory indicates that IMD would generally be more suited to learners who already have a higher level of expertise in a field because attentional demands on such students are less, and these students are likely to better cope with, and indeed possibly prefer, a compressed teaching format. The higher attentional demands on novices for learning new concepts would likely prohibit them from having an optimal learning experience in an IMD class.

IMD is also likely to be more suited to students who are highly motivated to learn the subject material. Highly motivated students should have greater metacognitive skills regarding what they would like to learn from a subject. They would thus be more willing to complete any preparatory work, attend all classes, put effort into assignments, and generally engage more with the teacher, classmates and the subject content to learn.

Regarding subject content, cognitive learning theory indicates that more difficult subjects (e.g. biochemistry, research methods) are less suitable to teaching in IMD formats. More difficult subjects have higher demands on attention, and, therefore, IMD may not be suitable for such subjects.

Regarding the design of an IMD subject, cognitive learning theory indicates that such subjects will be more effective if students are exposed to the new content before attending class. Exposure to new content prior to class would reduce attentional demands by helping students to move the new material into long term memory before class meeting time. In class, students could

hear the information repeated and have more time to apply it to solving problems. Therefore, in an IMD class, teachers should not expect to deliver all of the content during class meetings nor should students expect to do all of the learning during these meetings. Exposure to the new content should take place over time before students come to class; however, a danger with IMD is that students will not follow the guidelines given to them and will cram material before, during, and after class, and they will therefore retain little of what was offered. As Doyle (2011) notes, "The key elements in developing long-term memories are repetition and elaboration of the information and skills being taught" (p. 144).

The paper now moves to our review of recent empirical studies of IMD. The research method explains how we located articles for review and evaluated them. Cognitive learning theory will be applied to explain the findings of these studies.

Research Method

To locate literature for the review, we utilized a broad search strategy on the terms "intensive mode teaching" and "block mode teaching" in the Bond University library database, Google, and Google Scholar. We then used the references in the literature we found for identifying further sources the initial search might have missed. Altogether, this search strategy initially led to the identification of 27 sources published from 2006-2020 covering issues broadly related to intensive mode teaching or block mode teaching, including case studies, reflections, and best practice guides.

However, given our focus on *empirical* studies related to IMD and 'highly intensive mode' teaching, we excluded not only studies that did not present empirical data, but also studies that compared traditional, semester-length courses to extended summer schools of more than four

weeks duration or other formats that exceeded this length. Altogether, based on these criteria, 19 of the sources identified did not qualify, leaving us with seven studies for our analysis. Interestingly, five of these seven studies were undertaken in Australia. An overview of these studies, their research methodologies and key findings are presented in Table 2 below. In the following, we will discuss these findings in more detail and in relation to the questions we have raised above.

Table 2. Overview of relevant studies analyzed

Study	Country, discipline area and level (UG/PG)	Methodology	Format	Findings: Positive	Findings: Negative
Burton and Nesbit (2008)	Australia MBA PG	Comparison of traditional and intensive mode in terms of student preference. *Instrument:* Surveys, distributed in 45 classes *Control:* Demographic analysis of study participants revealed no significant differences in format choice according to gender, study status or age.	*Traditional:* 10 weeks; 4 hours/week *Intensive:* 5 days; 8 hours each day	Preference for block courses appears to increase as students become more experienced with the format.	Students who had not attended block courses perceived them as inferior. Overall, student preference for a block format appears to be highly contingent on several criteria: The subject, their experience, subject load and their perceived ability in the subject. Over 70% of students showed a strong preference for traditional delivery when the subject was considered 'heavily quantitative'.
Dixon and O'Gorman (2019)	UK Tourism Management UG	Investigation of the perceptions of 9 lecturers who had taught intensive mode courses for the first time.	*Traditional:* not specified *Intensive:* 2 days; 6 hours each, over a three-week period	Some participants reported that block teaching had gone better than they initially expected. Block teaching offered students a faster	Some participants reported feeling rushed and lacking sufficient preparation time. They felt forced to filter content down to the basic elements and that assignments were

Study	Country, discipline area and level (UG/PG)	Methodology	Format	Findings: Positive	Findings: Negative
		Instrument: Questionnaire featuring 5 open-ended questions.		sense of accomplishment and insight into how they were performing. Block teaching allowed students and teachers to focus more fully and create a seamless learning experience.	lagging behind course content. Some were worried that block teaching did not allow adequate time for students to absorb and reflect on material and to acquire job-relevant time-management skills.
Karaksha et al. (2013)	Australia Pharma-cology UG	Comparison of traditional and intensive mode in terms of student performance and satisfaction. *Instruments:* Survey + analysis of grades *Control:* Cohort composition/ characteristics	*Traditional:* 13 weeks; 3 hours/week *Intensive:* 3 weeks of 13 hours of lectures	Increased student preference towards the course; students in intensive mode had lower GPA but performed as well as students in traditional mode	
Ladyshewsky and Taplin (2013)	Australia Manage-ment PG	Comparison of traditional, online only and intensive mode in terms of student preferences. *Instrument:* Survey *Control:* Courses were delivered by the same academic	*Traditional:* 14 weeks; 36 hours of in-class tuition *Intensive:* 6 full day sessions across three weeks; 36 hours of in-class tuition		Students reported the lowest amount of overall learning in intensive mode compared to the other delivery modes. Only 15 percent of students would choose intensive mode again.
Mishra and Nargundkar (2015)	India Management (MBA) PG	Comparison of traditional and intensive mode in terms of	*Traditional:* 10 weeks		Students perceived intensive mode as very challenging in terms of commitment,

Study	Country, discipline area and level (UG/PG)	Methodology	Format	Findings: Positive	Findings: Negative
		student perceptions. *Instrument:* Survey	*Intensive:* two weeks		engagement, focus and concentration. Overall, it was felt that learning suffers through intensive delivery.
Ramsay (2011)	Australia Law PG	Comparison of traditional and intensive mode in terms of student perceptions. *Instrument:* Survey *Control:* Courses were delivered by the same academic	*Traditional:* full semester; 2 hours/week *Intensive:* five days	Overall, little difference between traditional and intensive mode was reported. Intensive mode rated slightly better on most measures, but only for two measures was the difference statistically significant.	
Welsh (2012)	Australia Engineering UG	Comparison of traditional and intensive mode in terms of student and staff perceptions. *Instruments:* Survey + analysis of grades	*Traditional:* Full semester *Intensive*: 5-8 consecutive or largely consecutive days	Students expressed preference for intensive courses, believing that they require less time. No significant difference in terms of student performance between the two delivery modes was found.	Students believed that traditional courses encouraged more reading and resulted in better learning; Students believed that intensive courses do not allow sufficient time for reflection; Students reported to feel fatigued towards the end of the intensive course.

Learning issues identified in highly intensive IMD subjects

Researchers since 2006 identified both positive and negative learning issues with highly intensive IMD subjects. This section will first outline positive learning issues and then outline the negative ones.

Positive learning issues

Positive learning issues identified from this literature review for highly intensive IMD subjects were as follows:

- *IMD can be used to ease students into university learning*: Following a study of lecturers' perceptions of IMD in an undergraduate program that enrolled non-traditional learners, Dixon and O'Gorman (2019) suggested that teaching just one subject in block form at the start of a semester could allow students to "ease" into university learning by allowing them to focus on just a single subject (p. 7).
- *When taking a single subject in IMD, this mode may improve the performance of students who have lower GPAs:* In a study of student performance in a traditionally scheduled versus an IMD pharmacology class, Karaksha et al. (2013) concluded that "intensive mode teaching … may have the potential to improve performance for students with lower GPAs" (p. 5217l). The IMD class in this study was only one part of the students' overall program. The students who elected to take the IMD class had a significantly lower mean GPA for all three years of their study than the students in the traditional class, yet the students in the IMD class achieved higher marks.
- *IMD may be more engaging and result in increased commitment to learning, focus and concentration*: Mishra and Nargundkar's (2015) survey of management students' perceptions of 19 dimensions of learning in India found that students perceive IMD to be more engaging than traditional learning although they were statistically more satisfied overall with traditional learning. Students also perceived that IMD creates greater commitment to learning, focus and concentration. In the IMD program studied, students spent one term in which all subjects were delivered in two weeks instead of ten. The

students then spent another term learning in traditional mode. As will be discussed, students gave negative ratings to nearly all the other dimensions of learning for IMD.

Considering the positive issues through the lens of cognitive learning theory, a single, initial IMD class for a cohort of non-traditional students could work well if the students have about the same level of expertise. This initial class could be used to help students begin developing basic knowledge of their field as well as the metacognitive skills needed to succeed in university study. Attentional demands could be managed in many ways such as making the content interesting and emotionally stimulating, focusing the teaching on just one task at a time, structuring the information, visualizing concepts, and having students explain concepts to one another (Doyle, 2011).

The Karaksha et al. (2013) study of IMD teaching for students with lower GPAs, again, suggests that having a cohort of students who all had the same level of expertise may have contributed to the class's success. More detail of the teaching would be needed to explain other factors of the class's success.

Finally, the Mishra and Nargundkar (2015) study would also need more detail to explain these findings in light of cognitive learning theory. It is likely that students who have higher expertise and motivation would have found IMD to be more engaging and result in increased commitment to learning, focus and concentration. Those students with higher expertise and motivation might have appreciated focusing on only one subject at a time and moving through material quickly.

Negative learning issues

To begin, the Dixon and O'Gorman (2019) study found several learning issues in the undergraduate degree program that they studied. The program was run in block mode for one year and had enrolled some non-traditional learners. Negative issues involved the following:

- *Poor attendance*: The researchers found that the IMD program started out well but ran into problems as it progressed. One key problem was poor attendance, which inhibited students' deep learning. The researchers therefore recommended that IMD be used for just the first subject taught each year, as discussed previously. Regarding attendance, the researchers wrote, "Due to the quantity of teaching undertaken on one day, the impact of any absence … was multiplied in a way that it would not have been had a more traditional mode of delivery been undertaken" (p. 11).
- *Increased risk of failing*: Problems with attendance in IMD increased students' risk of failing. On this issue, Dixon and O'Gorman (2019) said, "the potential impact of student absence, due to illness for example, could exacerbate risk of failure because of the volume of content they would have missed" (p. 8).
- *Poorer results on final assessments*: The researchers also found that students' performance on the last assignment in an IMD subject typically decreased because the students had moved on to the next IMD subject.
- *Potentially offer minimal learning*: Dixon and O'Gorman (2019) also found that the IMD structure of block delivery in the degree that they studied led to teaching of only the subject basics. Thus, students achieved only minimal learning. Other studies, as discussed

below, have also found that IMD can result in reduced learning compared to traditional subjects.

Other studies found the following negative issues:

- *Many negative learning issues for Indian students who were not used to this mode*: Mishra and Nargundkar (2015) found that students in an Indian management degree rated the following dimensions of learning quite low for IMD compared to traditional delivery: "comprehension, skill development, and application" (p. 414). The researchers also found that, compared to traditional learning, students perceived that IMD "reduces desire to learn, [and is] poorly organized, less flexible, less integrated, less enjoyable, more stressful, and reduces retention [of material]" (p 414).
- *Covers less content and offers less opportunity for absorption of material and time to reflect on content*: Burton and Nesbit's (2008) survey of postgraduate students taking both block and traditional courses in an Australian business school found that most students perceive traditional courses to have higher educational benefit. These students said that traditional courses offered them more time to absorb and reflect on material and covered more content. Probably because IMD offers less opportunity to absorb material, students prefer traditional mode for studying difficult or quantitative subjects or subjects in which they have no previous background.
- *Most students believe that they learn less in IMD subjects*: Welsh's (2012) survey of engineering students who had taken both traditional and IMD subjects found that most students thought that they learned better in traditionally delivered subjects. Ladyshewsky and Taplin's (2013) survey of postgraduate students' reasons for taking a subject in face-to-face, fully online, or intensive mode supports Welsh's (2012) findings. Ladyshewsky

and Taplin found that students who chose to study in intensive mode, as compared to the other modes, found it less important to be in contact with their teachers or other students or to receive much educational benefit from their courses. The findings suggested that students chose intensive mode just to complete a subject quickly and not to learn a lot.

- *Students are less likely to complete the required reading*: Ramsay's (2011) interviews with Australian law lecturers who use IMD for their subjects found that students in IMD subjects are less likely to do the required reading than are students taking subjects in traditional mode. Ramsay (2011) believes that getting students to do the required reading for an IMD subject will always be difficult. Therefore, lecturers need other techniques to encourage students to read as much of the material as possible. Welsh's (2012) survey of engineering students who took both traditional and IMD subjects support Ramsay's findings that students do less reading for IMD classes.
- *IMD subjects result in fatigue*: Welsh's (2012) study found that by the end of an IMD subject, students were tired and had trouble concentrating. Fatigue is not conducive to learning, and, as Welsh noted, most probably does not help with retention of material at the end of a subject when more difficult concepts are being taught.
- *Non-native speakers of English may struggle with IMD*: Based upon a personal interview, Welsh (2012) reported that "non-native English speakers struggle with the Intensive format as it conflicts with their learnt coping mechanisms of repeatedly accessing materials between lectures" (p. 2).

Most of the negative issues regarding IMD appear to deal with in-class attentional problems but may also be due to students' lack of ability to fit education including study time into their work-life balance. Learning happens over time and, as stated earlier, requires repetition and elaboration

to move new material into long term memory. If students' attention is exhausted across long consecutive days of class and especially if students do not prepare before attending class, then their learning will be suboptimal. IMD classes need to be carefully designed to prevent exhaustion, and students need to understand that learning in an IMD class also requires study outside of class meeting times. As mentioned earlier, the limitations of IMD can be partly overcome by providing students with preparatory material so that they are exposed to the content before attending class. Such material will allow them the opportunity to repeat ideas so that they can move it into long term memory before attending class. As students may not have the metacognitive skills needed to plan their study, then they will need guidance on how to do so before coming to class. While IMD may appear to be a more convenient study option, it may just give the illusion of convenience since good results require time spent on learning outside of class time. Working adults need to add study time into their choice to undertake IMD to ensure that education will truly fit into their work-life balance.

Comparison of positive and negative learning issues

It is interesting to note that the positive and negative issues often mirror each other. For example, on the positive side, Karaksha et al.'s (2013) study found that low scoring students receive better grades in IMD classes yet Dixon and O'Gorman (2019) found that students in general receive poorer results in their final assessments. The positive outcomes of IMD speak of increasing engagement (Mishra & Nargundkar, 2015) while the negative outcomes speak of the ill effects of poor attendance (Dixon & O'Gorman, 2019) and that students are not likely to finish the reading

(Rramsay, 2011; Welsh, 2012). These issues warrant further analysis toward finding root causes, and as such, make any current conclusions close to impossible.

Limitations of methodologies used in recent IMD studies

Our literature review confirms the observation made by several scholars investigating IMD, which is that despite the increasing popularity of this form or delivery, rigorous and methodologically robust research into the benefits and challenges of this form of pedagogy is still in its infancy (Kretovics, Crowe & Hun, 2008; Harvey, Power & Wilson, 2017). In his review, Davies (2006) pointed out several problematic issues complicating the drawing of clear-cut conclusions from the studies comparing IMD and traditional teaching formats. Among these are:

- *Self-selection biases*: Students often self-select the programs in which they enroll, which is likely to have an effect on student evaluations of the respective courses evaluated and compared.
- *Timing of data collection*: Studies often base their results on data collected immediately after the completion of the respective courses (traditional/intensive), which does not allow for the evaluation of the medium to long-term learning outcomes achieved.
- *Lack of clarity regarding what is being measured*: Related to the two previous issues, Davies (2006) noted that in many cases it is not clear whether the observed – mostly comparable or slightly better – learning outcomes reported for IMD are actually an outcome of the teaching method or rather the result of the fact that courses offered in intensive formats are often taken by older, more mature students, who are more motivated and thus more likely to succeed.

In addition to these issues, we can also note that there is often a significant – and sometimes problematic – variety in the formats being compared in the studies undertaken so far. Some studies compare traditional to intensive formats in which the overall content covered and teaching styles used are similar; others, however, base their comparisons on scenarios in which the intensive mode deliveries used different teaching styles and adapted the content to the course length, often by reducing the overall course material covered and by focusing on 'threshold concepts' (Crispin et al., 2016).

Other issues are as follows:

- Many of the recent studies lacked controlling variables or focused on just one control mechanism.
- There is a lack of studies that attend to the diversity of student cohorts and related learning outcomes in IMD.
- There is a lack of studies that use qualitative methodologies for investigating student perceptions and experiences; staff perceptions are often investigated by using qualitative methods, but student perceptions are typically assessed by means of surveys.

One of the dangers associated with this lack of methodologically robust research into intensive mode delivery of courses is that it "appears to be leading to a disproportionate focus on the positive or beneficial pedagogical aspects of intensive mode delivery, without sufficient critique of the potential challenges of curriculum design and effective delivery" (Harvey, Power & Wilson, 2017, p. 323).

Tentative conclusions about the advantages and disadvantages of IMD

This review of more recent empirical studies of IMD indicates that IMD is here to stay, especially for postgraduate education, despite any of its drawbacks to learning. IMD appears to be conducive to learning when used for a single university entry subject to help new undergraduate students and non-traditional learners ease into the expectations of university learning. Largely, however, IMD is most useful for working adults who cannot attend classes during a traditional semester and want convenience in their studies.

The structure of IMD may lead to learning problems if students have poor attendance, do not do the required reading, and become fatigued from being in class for long hours over multiple days trying to take in new material. IMD appears to be more problematic for ESL students and for most people who are learning difficult or quantitative subjects or completely new material as less time is available to absorb and reflect on the material. IMD is more useful for students who have prior background in a subject area. Also, when students take IMD subjects back to back, they tend to do worse on the final assignment as it is typically due later in the semester. Thus, students may be learning less from this assignment than they would in a traditionally run subject.

Further research

Based upon this literature review, we recommend further research on which IMD structures are better for learning, what types of students would benefit most from IMD, how to design IMD classes to reduce fatigue, how to design learning for IMD, how to design and schedule assessments for IMD, and how to support non-traditional and ESL students in IMD. Further research could also be conducted on IMD subjects that are delivered fully or partly online or trans-nationally.

References

Australian Government Department of Education and Training (2018, July 12). Annual report 2016-2017. Goal 3: World-class tertiary education and research. Available online: https://www.education.gov.au/annual-report-2016-17/goal-3-world-class-tertiary-education-and-research

Biggs, J., & Tang, C. (2007). *Teaching for quality learning at university: What the student does* (3rd ed.). Berkshire: McGraw-Hill.

Burton, S., & Nesbit, P. (2002). An analysis of student and faculty attitudes to intensive teaching. *Celebrating teaching at Macquarie*, Macquarie University, NSW, 28-29 November 2002. North Ryde, NSW: Macquarie University.

Burton, S. & Nesbit, P. L. (2008). Block or traditional? An analysis of student choice of teaching format. *Journal of Management & Organization*, *14*(1), 4-19.

Cawelti, G. (1994). *High school restructuring: A national study*. ERS Report.

Davies, M. (2006). Intensive teaching formats: A review. *Issues in Educational Research*, *16*(1), 1-20.

Dixon, L. & O'Gorman, V. (2019). 'Block teaching' – exploring lecturers' perceptions of intensive modes of delivery in the context of undergraduate education. *Journal of Further and Higher Education*. Available online: http://researchonline.ljmu.ac.uk/id/eprint/10351/

Crispin, S., Hancock, P., Male, S. A., Baillie, C., MacNish, C., Leggoe, J., Ranmuthugala, D. & Alam, F. (2016). Threshold capability development in intensive mode business units. *Education + Training*, *58*(5), 521-539.

Cuseo, J. (2007). The empirical case against large class size: Adverse effects on the teaching, learning, and retention of first-year students. *The Journal of Faculty Development, 1*(17), 5-21.

Doyle, T. (2011). Learner-centered teaching: Putting the research on learning into practice. Sterling, VA: Stylus Publishing.

Giannakis, M., & Bullivant, N. (2016). The massification of higher education in the UK: Aspects of service quality. *Journal of Further and Higher Education, 40*(5), 630-648.

Harvey, M., Power, M. & Wilson, M. (2017). A review of intensive mode of delivery and science subjects in Australian universities. *Journal of Biological Education*, *51*(3), 315-325.

Hesterman, D. (2015). Intensive mode delivery of courses in engineering, computer science and mathematics. Final Report. Available online: https://www.ecm.uwa.edu.au/__data/assets/pdf_file/0009/2700846/Hesterman-2015-UWA-ECM-Report-on-intensive-mode-delivery.pdf

Ho, H. & Polonsky, M. (2009). Exploring Marketing Students' Attitudes and Performance: A Comparison of Traditional and Intensive Delivery. *Marketing Education Review*, *19*(3), 41-47.

Karaksha, A., Anoopkumar-Dukie, S., Grant, G., Davey, A. K., Nirthanan, S. N., Arora, D., Hope, D., Bernaitis, N., McFarland, A., Hall, S., Haywood, A., Holani, C., Grant, L., Chess-Williams, R. & McDermott, C. (2013). Benefits of intensive mode teaching to improve student

performance. Proceedings of ICERI 2013 Conference, Seville. Available online: https://research-repository.griffith.edu.au/bitstream/handle/10072/59795/90003_1.pdf;sequence=1

Kretovics, M. A., Crowe, A. R., Hyun, E. (2005). A study of faculty perceptions of summer compressed course teaching. *Innovative Higher Education, 30*(1), 37-51.

Ladyshewsky, R. K. & Taplin, R. (2013). Factors influencing mode of study preference in postgraduate business students. *The International Journal of Management Education*, *11*(1), 34-43.

Mishra, S. & Nargundkar, R. (2014). An analysis of intensive mode pedagogy in management education in India. *International Journal of Educational Management*, *29*(4), 408-419.

Ramsay, I. (2011). Intensive teaching in law subjects. *The Law Teacher*, *45*(1), 87-100.

Stevenson, J. C. (1994). Vocational expertise. In J. Stevenson (Ed.). *Cognition at work. The development of vocational expertise*. Adelaide: National Centre for Vocational Education Research.

Welsh, M. B. (2012). Intensive Teaching Modes: Benefits, Drawbacks and Directions Forward. Proceedings of the 2012 AAEE Conference, Melbourne. Available online: https://www.researchgate.net/publication/260061012_Intensive_teaching_modes_benefits_drawbacks_and_directions_forward

Wlodkowski, R. J. & Ginsberg, M. B. (2010). *Teaching Intensive and Accelerated Courses: Instruction that Motivates Learning*. San Francisco: Jossey-Bass.